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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,529	09/16/2003	Masakazu Takagi	242426US-2 DIV	1696
22850	7590	04/13/2004		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER STERRETT, JEFFREY L	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. <span style="float: right;">A</span>	Applicant(s) <span style="float: right;">A</span>	
	10/662,529	TAKAGI ET AL.	
	Examiner Jeffrey L. Sterrett	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-11 and 13-17 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 10/152,788.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                       |                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____                                                |

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1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/152,788, filed on May 23, 2002. Claims 9, 10, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9 and 10 are vague and confusing since in lines 10, 12, 15, and 17 of independent claim 9 "first dead time" and "second dead time" lack proper and clear antecedent basis. Claim 10 is likewise vague and confusing since in lines 2, 3, 4, and 5 "first dead time" and "second dead time" also lack proper and clear antecedent basis.

Claim 17 is incorrect and confusing since in lines 4-5 the first and second switching elements are apparently reintroduced as completely new and different switching elements from those already set forth in claim 11. Likewise in lines 6-8 the synchronous rectifying circuit is apparently reintroduced as a completely new and different synchronous rectifying circuit from that already set forth in claim 11.

Appropriate correction is required.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 11 and 13 are rejected under 35 U.S.C. 102(a) as being anticipated by Xing et al (US 6,545,883).

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Xing et al discloses a switching power supply unit (figures 5, 7, 8, 9, and 11) comprising a first switching element (Q1), a second switching element (Q2), a converter (13) having a first synchronous rectifying element (Q3) and a second synchronous rectifying element (Q4), and a driving circuit (16) controlling the operation of the first and second switching elements and having a dead time period (see line 64 of column 4 to line 6 of column 5 and lines 35-36 of column 7).

5. Claims 9-11, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Svardsjo (US 5,907,481).

Svardsjo discloses a switching power supply unit (figures 2 and 6) comprising a first switching element (Q1), a second switching element (Q2), a converter (S) having a first synchronous rectifying element (Q3) and a second synchronous rectifying element (Q4), and a driving circuit (CC and SC) controlling the operation of the first and second switching elements and having a dead time period (see figures 3 and 5 or lines 13-19 of column 10).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xing et al in view of Pruitt (US 4,761,722).

Xing et al teaches a switching power supply unit as recited by claims 14 and 15 except for utilizing a preceding-stage converter. Pruitt teaches utilizing a PWM

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preceding-stage converter (10) before a fixed duty switching power supply unit (330) was an old and known expedient in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the switching power supply unit of Xing et al by utilizing a preceding-stage converter in order to separate the regulation and conversion functions as taught by Pruitt.

8. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kuranuki et al (US 6,452,816) is cited to show a switching power supply unit as recited by claims 11 and 16 was old and known in the art at the time of the invention.

Watanabe (US 6,452,367) and Huang et al (US 6,469,915) are cited to show switching power supply units as recited by claims 9-11 were old and known in the art at the time of the invention.

Loftus (US 5,274,543), Zaitse et al (US 5,805,432), Tan (US 5,973,939), Stewart et al (US 5,986,895), Bowman et al (US 6,069,799), Simopoulos (US 6,262,901), Wittenbreder (US 6,560,127), and Tategami (US 6,580,626) are cited to show switching power supply units as recited by claim 11 were old and known in the art at the time of the invention.

Jones (US 4,533,986), Ferguson (US 4,686,615), Buthker (US 5,272,613), Nerone et al (US 5,408,403), Church et al (US 6,023,037), Lau (US 6,181,084), Jain et

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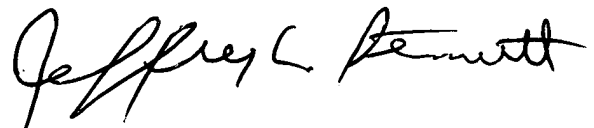
al (US 6,344,986), and Steigerwald et al (US 6,556,462) are cited to show preceding-stage converter s as recited by claims 14 and 15 were old and known in the art at the time of the invention.

Takagi et al (US 6,650,552) is cited as the parent patent of this application.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Sterrett whose telephone number is (571) 272-2085. The examiner can normally be reached on Monday-Thursday & 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrey L. Sterrett  
Primary Examiner  
Art Unit 2838